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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/198,376	11/24/1998	AKIRA OKAMOTO	NU-98035	2418

30743 7590 07/30/2002

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EXAMINER

FLANIGAN, ALLEN J

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 07/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/198,376

Applicant(s)

OKAMOTO ET AL.

Examiner

Allen J. Flanigan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-6, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 26, and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a reiteration of the grounds of rejection set forth in the previous Office action, including the basis for the prima facie finding of obviousness upon which the rejections are based:

Claims 1, 4, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokai #1-229800 to Genshiro in view of Urushibara et al. and Van Buskirk.

Genshiro teaches the use of a thermochromic layer to control to automatically control temperature via temperature-dependent emission of radiation using a superconducting material coating which has electrically conductive, thermally insulative properties at low temperatures and electrically insulative, thermally emissive properties at higher temperatures (see Fig. 2 in particular, plotting emissivity vs. temperature for the superconducting material). Although Genshiro does not expressly show the radiating board employed with a satellite, it is clearly suggested as a possible use of the disclosed device.

Urushibara et al. disclose a transition metal $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ superconducting material that exhibits a transition between conductive and nonconductive (electrically speaking) at a certain temperature range. Van Buskirk explicitly recognizes the "close relation" between electrical conductance and optical properties of transition metal oxides (see lines 47-52 of column 1).

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Thus, the prior art teaches the basic mechanism of automatic temperature control via variable emissivity claimed, and recognizes the suitable properties of the specific materials claimed. It would therefore be *prima facie* obvious to use the claimed material as the material for layer 13 of Genshiro. See MPEP § 2144.07.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al. in view of Urushibara et al. and Van Buskirk.

The teachings of Benson et al. have been discussed extensively in the prosecution of this application. Basically, Benson et al. teaches a thermochromic material (transition metal vanadium oxide is one example, but the disclosure is not limited thereto, and explicitly suggests that other materials would be suitable) which "changes from the emissive, electrically insulating state to the non-emissive, metallic state as a function of temperature. When it is hot, it becomes more emissive, and when it cools, it becomes less emissive" (lines 22-25 of col. 13, *cf* the language of claim 26). This layer 170 is applied to an object (sidewall 12 of panel 10) and effectively controls its temperature by controlling the amount of radiation emitted to sidewall 14 in dependence on the temperature of sidewall 12.

Urushibara et al. disclose a transition metal $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ superconducting material that exhibits a transition between conductive and nonconductive (electrically speaking) at a certain temperature range. Van

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Buskirk explicitly recognizes the "close relation" between electrical conductance and optical properties of transition metal oxides (see lines 47-52 of column 1). Thus, the prior art teaches the basic mechanism of automatic temperature control via variable emissivity claimed, and recognizes the suitable properties of the specific materials claimed. It would therefore be *prima facie* obvious to use the claimed material as the material for layer 13 of Genshiro. See MPEP § 2144.07.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Genshiro in view of Urushibara et al. and Buskirk as applied to claim 4 above, and further in view of Amore.

Please see the comments made in regard to the teachings of Amore in the office action mailed 12/15/1999. To add a selectively reflective coating to the radiation device of Genshiro would have been obvious.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al. in view of Urushibara et al. and Buskirk as applied to claim 4 above, and further in view of Amore.

Please see the comments made in regard to the teachings of Amore in the office action mailed 12/15/1999. To add a selectively reflective coating to the radiation device of Benson et al. would have been obvious.

Applicant's arguments filed 6/14/02 have been fully considered but they are not persuasive.

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Applicants make much of the fact that the claimed species of material to which the claims are now limited ($\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ superconducting material) are allegedly "quite rare", repeating this point several times and underlining the word "rare". Applicants also apparently believe that the Examiner is obligated to cite "another reference" which confirms the teachings of Urishibara et al. (page 2 of the response). However, patentability is not a contest of rarity vs. commonality. The standards of Patentability are clearly set forth in the statutes; one teaching is all that is necessary to establish lack of novelty or unobviousness. The cited art establishes that these materials and their properties are known in the art; how common they are has no bearing on the issue. No requirement for multiple references containing essentially the same teaching exists in patent law.

The applicants are indeed claiming a method, not a material, else Urishibara et al. would establish a lack of novelty of the material. As the Examiner pointed out above, a *prima facie* case of obviousness is established when the prior art shows a material or process that anticipates the claim except for the use of a particular material, and the properties of the particular material which makes it suitable for the claimed use are known in the art. The instant fact situation is analogous to that found in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) (Claims to a printing ink comprising a solvent having the vapor pressure characteristics of butyl carbitol so that the ink would not dry at room temperature but would dry

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quickly upon heating were held invalid over a reference teaching a printing ink made with a different solvent that was nonvolatile at room temperature but highly volatile when heated in view of an article which taught the desired boiling point and vapor pressure characteristics of a solvent for printing inks and a catalog teaching the boiling point and vapor pressure characteristics of butyl carbitol. "Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle." 325 U.S. at 335, 65 USPQ at 301.). The fact that Urishiba et al. do not explicitly suggest that their material is suitable for use in a thermal control device does not negate the finding of obviousness; the test of obviousness is not whether the claimed combination is expressly suggested in any one or all of the references, but what the combined teachings of the references would have suggested to those of ordinary skill in the art¹. Indeed, the CAFC more recently has confirmed this principle in *In re Nilssen*, 7 U.S.P.Q.2d 1500:

"Nilssen urges this court to establish a "reality-based" definition whereby, in effect, references may not be combined to formulate obviousness rejections absent an express suggestion in one prior art reference to look to another specific reference. We reject that recommendation as contrary to our precedent which holds that for the purpose of combining references, those references need not explicitly suggest combining teachings, much less specific references. See, e.g., *In re Sernaker*, 702

¹ *In re Rosselet*, 52 CCPA 1533, 347 F.2d 847, 146 USPQ 183 (1965); *In re Keller et al.*, 208 U.S.P.Q. 871;

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F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983); *In re McLaughlin*, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971)."

Applicants continue to misunderstand the distinction between electrical and thermal conductivity, and the teachings of the prior art regarding these characteristics in transition metal oxides such as Vanadium Oxide and $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$. See comments made in the final rejection mailed 9/12/2001 and the Advisory Action mailed 12/06/2000.

Finally, in addressing the rejection of claims 5 and 6, the applicants accuse the Examiner of "going to the parts bin of the patent literature and using impermissible hindsight reconstruction to produce the claimed invention using the applicants [sic] own disclosure as a guide" based on the particular number of references being applied. With all due respect, there is no standard of obviousness that involves counting the number of teachings being applied in establishing a *prima facie* finding of obviousness. Reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). Theoretically, there is no limit to the number of references which may be properly combined². In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made,

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and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the knowledge that transition metal oxides such as vanadium oxide, or superconductive materials, can be used for temperature control; the suggestion that other suitable materials may be substituted for vanadium oxide; and the knowledge that $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ possesses the necessary temperature responsive properties; is all knowledge available in the prior art as the above cited references establish.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone

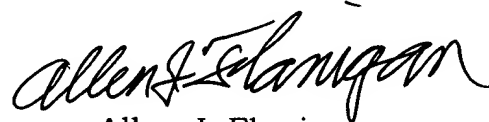
² Ex parte Fine, 1927 CD 84.

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number is (703) 308-1015. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on (703) 308-0101. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Allen J. Flanigan
Primary Examiner
Art Unit 3743

AJF
July 26, 2002